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THANGAVELU, KANDASAMY	
ART UNIT	**PAPER NUMBER**
2123	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/889,666	KODES, RUDOLF	
	Examiner	Art Unit	
	Kandasamy Thangavelu	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-7,9,11,20 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-7,9,11,20 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is in response to the Applicants' Response dated March 23, 2007. Claims 5-7, 9, 11, 20 and 21 of the application are pending. This office action is made final.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

3. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 5-7, 9, 11, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Agrawal et al.** (U.S. Patent 6,278,977) in view of **Steinman** (U.S. Patent 6,324,495), and further in view of **Virtamo et al.** (U.S. Patent 5,503,249).

4.1 **Agrawal et al.** teaches Deriving process models for workflow management systems from audit trails. Specifically, as per claim 21, **Agrawal et al.** teaches a (processing) method (for an engineering activity) (Abstract, L1-9; CL2, L16-23), comprising:

modeling an engineering activity having a plurality of interrelated events with relationships defined between the events (CL2, L16-23; Fig. 4, Items A, B and C);

displaying the model of the engineering activity with all relationships being shown; and selecting a first event of the engineering activity using a graphical user interface (CL2, L16-23; Fig. 4; CL3, L24-29; CL9, L21-26);

preparing first connections to connect the first event of the engineering activity to a set of second events of the engineering activity (CL2, L16-23; Fig. 4, Items A, B and C);

determining at least one third event of the engineering activity from the set of second events (Fig. 4, Item D, B and C; CL2, L18-23).

Agrawal et al. does not expressly teach preparing first connections to connect the first event of the engineering activity to a set of second events of the engineering activity in a cause-and-effect relationship. **Steinman** teaches preparing first connections to connect the first event of the engineering activity to a set of second events of the engineering activity in a cause-and-effect relationship (Abstract, L1-6; CL1, L39-47; CL1, L48-54). It would have been obvious to

one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Agrawal et al.** with the method of **Steinman** that included connecting a first event of the engineering activity to a set of second events of the engineering activity in a cause-and-effect relationship, because processing of an event can affect the state variables of the engineering system and can cause new events to occur in the future for one or more objects in the system; this interaction of cause and effect relationship requires that the new events generated be scheduled to occur at activity time later than current time (CL1, L48-54).

Agrawal et al. and **Steinman** do not expressly preparing at least one second connection to connect the at least one third event to the first event in a predecessor/successor relationship; and displaying the first event together with connections selected from the group consisting of the first connections and the at least one second connection, the first event and the connections being displayed without displaying any relationship unless the relationship is defined by a first or second connection. **Virtamo et al.** teaches preparing at least one second connection to connect the at least one third event to the first event in a predecessor/successor relationship; and displaying the first event together with connections selected from the group consisting of the first connections and the at least one second connection, the first event and the connections being displayed without displaying any relationship unless the relationship is defined by a first or second connection (Fig. 3, Move event to stop event, where stop event is the third event and move event is first event; pass event is the second event; open event to close event, where open event is the first event and close event is the third event; there can be another open event while the door is closing if a customer enters the car while it is closing; inherent in elevators is passenger deboard event as a first event; passenger board event as the second event; door close

event as the third event; if there are no passengers waiting at the floor to board the car, the passenger deboard event will be followed by the third event, door close; CL2, L53 to CL3, L1; CL2, L65 to CL3, L1; CL3, L22-25; CL3, L34-39). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Agrawal et al.** and **Steinman** with the method of **Virtamo et al.** that included preparing at least one second connection to connect the at least one third event to the first event in a predecessor/successor relationship; and displaying the first event together with connections selected from the group consisting of the first connections and the at least one second connection, the first event and the connections being displayed without displaying any relationship unless the relationship is defined by a first or second connection, because that would allow efficiently operating the system in an optimal manner to ensure that the service offered to the customers was as efficient as possible; in elevators this would be minimization of average passenger waiting time (CL1, L16-21).

Per claim 5: **Agrawal et al.** teaches the events have a predecessor/successor relationship with respect to one another (CL8, L6-15; CL10, L40-47).

4.2 As per claims 6 and 7, **Agrawal et al.** and **Steinman** do not expressly that the first event precedes the third event in the predecessor/successor relationship; the third event succeeds the first event in the predecessor/successor relationship. **Virtamo et al.** teaches that the first event precedes the third event in the predecessor/successor relationship; the third event succeeds the first event in the predecessor/successor relationship (Fig. 3, Move event to stop event, where stop

event is the third event and move event is first event; pass event is the second event; open event to close event, where open event is the first event and close event is the third event; there can be another open event while the door is closing if a customer enters the car while it is closing; inherent in elevators is passenger deboard event as a first event; passenger board event as the second event; door close event as the third event; if there are no passengers waiting at the floor to board the car, the passenger deboard event will be followed by the third event, door close; CL2, L53 to CL3, L1; CL2, L65 to CL3, L1; CL3, L22-25; CL3, L34-39).

Per claims 9 and 11: **Agrawal et al.** teaches that the events have associated information generated as results of the activities (CL3, L24-29; CL7, L57-59); and

the graphical representation is effected by means of actuation using a context-sensitive menu (CL3, L24-29; CL7, L57 to CL8, L5).

Per claim 20: **Agrawal et al.** teaches that the events have associated information, generated as results of the activities (CL11, L45-55).

Response to Arguments

5. Applicant's arguments with respect to 35 USC 103 (a) rejections filed on March 23, 2007 have been considered. Applicant's arguments with respect to 35 USC 103 (a) rejections are not persuasive.

5.1 As per the applicant's argument that "Agrawal shows no preparing first connections to connect the first event of the engineering activity to a set of second events of the engineering activity in a cause-and-effect relationship; Steinman teaches no preparing first connections to connect the first event of the engineering activity to a set of second events of the engineering activity in a cause-and-effect relationship; in Steinman , events associated with a simulated object are maintained in increasing time order by event queue; the sequence in which events are simulated is defined by the time indices, not by a cause and effect relationship; since the interaction of cause and effect requires that new events generated be tagged with time indices greater than or equal to the current simulation time index, Steinman is not preparing first connections to connect the first event of the engineering activity to a set of second events of the engineering activity in a cause-and-effect relationship", the Examiner takes the following position.

The specification describes at Para 003, engineering process having units having relationships; at Para 006, a first unit, a set of second units and a third unit; a second unit connected to a first unit; a third unit determined from the second units, which has a relationship with the first unit; at Para 0011, that the third unit can be a predecessor or successor of the first unit; at Para 0013, that units represent activities or results of the activities; a set of activities being able to act on an event; an event being a precondition for a plurality of activities; at Para 0031, that units are embodied as activities or results; at Para 0033, that activities have direct predecessors and direct successors; the predecessor results are illustrated; at Para 0035, that connection criteria includes predecessors and successors; units of different type are results and

activities; at Para 0037, selecting a plurality of first units for which third units are determined from second units; at Para 0038, results are selected and all the following activities are determined; results being predecessors of activities; (therefore results are inputs to the activities); activities give rise to results (therefore results are outputs of activities).

Therefore, the whole specification deals with an activity network which has inputs and outputs as nodes and activities as links. This is confirmed in Figs. 1, 2 and 3. There is only scant reference to events at Para 0013, that a set of activities being able to act on an event; and an event being a precondition for a plurality of activities.

The Examiner interpreted the predecessor and successor event from this reference as event being a successor of activities and event being a precondition (or predecessor) of activities. All simulations model events in a system using the event scheduler. Events occur in the systems. Events refer to a particular time at which system is a t a particular state. The system comes to that state due occurrence of activities in between the events. The simulations can be modeled by an activity network showing the activities along the links and the events at the nodes. The activities will have predecessor events and successor events. One can think of the predecessor event or the system state at that event as input to the activity. Similarly, one can think of the successor event as the output of the activity.

The specification and the originally filed claims do not discuss cause and effect relationship between events of an activity anywhere. The Examiner directs the applicants to show where in the specification there is description of cause and effect relationship. Since there is no explicit mention of cause and effect relationship in the specification, the Examiner assumed the implicit cause and effect relationship that is generally assumed in

simulation models and activity networks. If an activity has event A as input and event B as output, then there is only a predecessor/successor relationship between the events through the activity, not a cause and effect relationship. However, if event A did not occur then event B cannot occur, if event B can be reached only through one activity. The cause for event B not occurring could be that event A did not occur. If event B occurs then the cause would be event A. Thus there is implicit cause and effect relationship between events in the simulation and in other activity networks.

The applicants did not discuss event based activity network in the specification. They mention units and their relationships. The units are specified to be activities or results (which could be inputs to the activities or outputs of the activities). Only there is a scant reference to events in the specification. All the figures showing the activity network show only results as inputs and outputs of the activities. **There is no mention of cause and effect relationship in the specification.** Since the applicants did not describe event based activity network or the cause and effect relationship in the specification, the Examiner assumed implicit cause and effect relationship in event based activity network to interpret the claims. Therefore, the Examiner takes the position that his use of Steinman reference is fully justified. Steinman reference teaches simulation model, events in the simulation model and events having cause and effect relationship.

In addition, the Examiner also directs the Applicants' attention to "Effect of stage models in community intervention programes; and the development of the models for management of intervention programme preparation (MMIPP)", Health Promotion International, Vol. 11, No. 2,

1996, Pages 143-156 by Sanderson et al.; in particular Introduction: effects and stages on Pages 143 and 144 which describes "an alternative approach, in which circles represent events and arrows processes used in some project management models such as Critical Path Method (CPM); in cause-effect links, the boxes usually contain the events or variables, and arrows indicate that event A causes event B or more usually, that changes in variable A will result in changes in variable B; if a link appears in the model, it implies that there is empirical evidence or a priori grounds for believing that A affects B; a connected set of causal relationships can be put together to form a causal or effect model".

5.2 As the applicants' argument that, "Agrawal seeks to avoid modification proposed by the Examiner; the modification would mean that a process model would have to be defined externally in an a priori approach; Agrawal rejects that approach in favor of a posteriori approach; making such modification would change the principle of operation of Agrawal; therefore, the teachings of the references are not sufficient to render the claims prima facie obvious", the Examiner takes the position that Agrawal teaches an activity network with events and activities. Such activity networks model activities with predecessor events and successor events. There is implicit cause and effect relationship between events in the activity network. The behavior of the activity networks are often simulated to verify the accuracy of the networks and the performance of the process modeled by the activity network. The Examiner used Steinman since it describes a simulation model with events (and activities in between the events) and the cause and effect relationship between the events. Steinman explicitly stated the cause

and effect relationship between the events. Steinman was used to interpret the activity network of Agrawal, which has implicit cause and effect relationship.

5.3 As per the applicants' argument that "Virtamo teaches no preparing first connections to connect the first event of the engineering activity to a set of second events of the engineering activity in a cause-and-effect relationship", the Examiner directs applicants attention to Paragraph 5.1 above.

As per the argument that "there is no second connection between the move event and stop event in Virtamo; the pass vent does not have to happen, so a pass vent is not inherent; there is no second connection between an open event and a close event in Virtamo; a passenger does not have to board or deboard a vehicle, so neither a passenger boarding nor a passenger deboarding is inherent", the Examiner takes the position that in the applicants model there does not have to be a second connection between the first event and the third event. Sometime such connections exist, sometimes not. Similarly, if an elevator is going from floor 3 to floor 7 in Virtamo, then there is a pass event at floors 4, 5 and 6. However, if it going from floor 3 to floor 4, then there is no pass event. Similarly, if an elevator comes to a floor, sometime passengers deboard from the car; sometime passengers board the car; sometimes both deboarding and boarding occur; sometimes, the elevator comes and opens the door and no one deboards from the car and no one boards the car. All combinations are possible in Virtamo. Therefore, Virtamo has the same connection relationship as the applicants' model with first, second and third events.

Conclusion

ACTION IS FINAL

6. Applicant's arguments with respect to claim rejections under 35 USC 102(a), 35 USC 102 (e) and 35 USC 103 (a) are not persuasive. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kandasamy Thangavelu whose telephone number is 571-272-3717. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez, can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to TC 2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

K. Thangavelu
Art Unit 2123
May 18,2007

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